

Bottom Ash Data

2018 Week 51

The following analytical report was sent to the Ministry of Environment and Climate Change Strategy on January 7, 2019. The data represents bottom ash composite results for week 51 of 2018 (December 16, 2018 to December 22, 2018).

The bottom ash meets the requirements of Metro Vancouver's Bottom Ash Management Plan and is suitable for beneficial use during Coquitlam Landfill closure works.



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Date Received: 27-DEC-18
Report Date: 07-JAN-19 10:50 (MT)
Version: FINAL

Client Phone: 604-521-1025

Certificate of Analysis

Lab Work Order #: L2214532
Project P.O. #: VANCO-0000047506
Job Reference:
C of C Numbers:
Legal Site Desc: 46693 Weekly Bottom Ash-Suite

Brent Mack, B.Sc.
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2214532-1	L2214532-2	L2214532-3	L2214532-4	L2214532-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	19-DEC-18	19-DEC-18	19-DEC-18	19-DEC-18	19-DEC-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1851-A-1	BA1851-A-2	BA1851-A-3	BA1851-A-4	BA1851-A-5
Grouping	Analyte						
SOIL							
Physical Tests	Moisture (%)		19.8	21.7	21.7	19.3	20.6
	pH (1:2 soil:water) (pH)		11.69	11.64	11.64	11.82	11.89
Metals	Aluminum (Al) (mg/kg)		41900	41600	37500	51300	35100
	Antimony (Sb) (mg/kg)		197	382	180	188	194
	Arsenic (As) (mg/kg)		30.9	31.7	40.3	33.2	29.6
	Barium (Ba) (mg/kg)		445	518	525	433	461
	Beryllium (Be) (mg/kg)		0.47	0.42	0.46	0.41	0.43
	Bismuth (Bi) (mg/kg)		10.9	14.3	9.30	11.6	12.1
	Boron (B) (mg/kg)		292	266	293	276	263
	Cadmium (Cd) (mg/kg)		21.2	16.7	16.4	18.7	20.1
	Calcium (Ca) (mg/kg)		157000	148000	148000	156000	168000
	Chromium (Cr) (mg/kg)		200	191	154	190	194
	Cobalt (Co) (mg/kg)		149	29.0	31.0	148	32.5
	Copper (Cu) (mg/kg)		2080	2460	2440	2710	3160
	Iron (Fe) (mg/kg)		57700	72900	73700	42900	54000
	Lead (Pb) (mg/kg)		627	2130	1160	793	852
	Lithium (Li) (mg/kg)		28.3	15.8	45.1	21.1	18.1
	Magnesium (Mg) (mg/kg)		11300	12200	10800	12500	13100
	Manganese (Mn) (mg/kg)		1070	939	898	724	763
	Mercury (Hg) (mg/kg)		<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)		65.9	54.5	55.9	58.7	62.0
	Nickel (Ni) (mg/kg)		277	255	562	198	146
	Phosphorus (P) (mg/kg)		9980	11300	11300	11300	14000
	Potassium (K) (mg/kg)		6460	6690	6710	6430	7250
	Selenium (Se) (mg/kg)		0.78	0.61	0.60	0.70	0.67
	Silver (Ag) (mg/kg)		8.12	7.73	5.75	16.4	8.47
	Sodium (Na) (mg/kg)		15700	16500	16500	16200	18100
	Strontium (Sr) (mg/kg)		359	343	333	339	368
	Sulfur (S) (mg/kg)		17600	15400	15600	16300	18000
Thallium (Tl) (mg/kg)		0.081	0.088	0.082	0.074	0.093	
Tin (Sn) (mg/kg)		155	139	141	172	159	
Titanium (Ti) (mg/kg)		766	839	711	792	586	
Tungsten (W) (mg/kg)		30.6	23.0	19.9	20.8	32.0	
Uranium (U) (mg/kg)		4.95	5.04	4.55	5.20	5.42	
Vanadium (V) (mg/kg)		57.6	54.5	54.1	56.0	59.5	
Zinc (Zn) (mg/kg)		5290	4390	3880	4730	4710	
Zirconium (Zr) (mg/kg)		1.4	1.5	1.9	2.2	1.2	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L2214532-6 Soil 19-DEC-18 09:00 BA1851-A-6	L2214532-7 Soil 19-DEC-18 09:00 BA1851-A-7	L2214532-8 Soil 19-DEC-18 09:00 BA1851-A-8	L2214532-9 Soil 19-DEC-18 09:00 BA1851-A-9	L2214532-10 Soil 19-DEC-18 09:00 BA1851-A-10	
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	21.3	22.4	20.7	19.3	19.2
	pH (1:2 soil:water) (pH)	11.75	11.62	11.65	11.70	11.80
Metals	Aluminum (Al) (mg/kg)	44500	35700	37600	46200	56900
	Antimony (Sb) (mg/kg)	185	162	11400	179	163
	Arsenic (As) (mg/kg)	25.9	24.2	31.1	24.6	22.6
	Barium (Ba) (mg/kg)	540	523	439	488	568
	Beryllium (Be) (mg/kg)	0.43	0.38	0.41	0.43	0.41
	Bismuth (Bi) (mg/kg)	11.2	9.49	26.7	12.2	9.69
	Boron (B) (mg/kg)	243	226	262	228	285
	Cadmium (Cd) (mg/kg)	16.5	16.3	17.6	17.9	15.2
	Calcium (Ca) (mg/kg)	157000	144000	145000	145000	147000
	Chromium (Cr) (mg/kg)	208	142	162	225	1510
	Cobalt (Co) (mg/kg)	44.6	19.8	37.3	31.8	42.8
	Copper (Cu) (mg/kg)	1810	1480	8480	3390	5490
	Iron (Fe) (mg/kg)	57500	52900	56900	42500	55200
	Lead (Pb) (mg/kg)	1310	528	8380	607	5660
	Lithium (Li) (mg/kg)	20.0	14.7	16.5	18.5	16.3
	Magnesium (Mg) (mg/kg)	12500	10500	10800	11600	11900
	Manganese (Mn) (mg/kg)	848	1330	749	746	975
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	47.6	65.1	49.1	52.0	94.3
	Nickel (Ni) (mg/kg)	155	104	190	263	631
	Phosphorus (P) (mg/kg)	12100	9360	9460	9920	9710
	Potassium (K) (mg/kg)	6710	6560	6000	6420	6120
	Selenium (Se) (mg/kg)	0.67	0.59	0.55	0.67	0.52
	Silver (Ag) (mg/kg)	6.50	6.12	8.59	10.7	8.12
	Sodium (Na) (mg/kg)	16500	16700	15100	16100	15300
	Strontium (Sr) (mg/kg)	635	325	317	329	371
	Sulfur (S) (mg/kg)	15600	15400	15300	15800	14800
	Thallium (Tl) (mg/kg)	0.086	0.079	0.103	0.095	0.090
	Tin (Sn) (mg/kg)	140	126	2940	244	6960
	Titanium (Ti) (mg/kg)	835	965	889	984	1510
	Tungsten (W) (mg/kg)	23.1	38.7	19.8	22.0	17.3
	Uranium (U) (mg/kg)	5.11	4.75	4.50	4.93	4.23
	Vanadium (V) (mg/kg)	68.4	50.4	51.3	54.4	60.7
	Zinc (Zn) (mg/kg)	4250	5690	6290	4310	4380
	Zirconium (Zr) (mg/kg)	1.6	1.4	1.4	2.2	2.6

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2214532-11	L2214532-12		
		Description	Soil	Soil		
		Sampled Date	19-DEC-18	19-DEC-18		
		Sampled Time	09:00	09:00		
		Client ID	BA1851-A-11	BA1851-A-12		
Grouping	Analyte					
SOIL						
Physical Tests	Moisture (%)	20.9	20.7			
	pH (1:2 soil:water) (pH)	11.80	11.88			
Metals	Aluminum (Al) (mg/kg)	36500	33900			
	Antimony (Sb) (mg/kg)	153	167			
	Arsenic (As) (mg/kg)	27.8	29.9			
	Barium (Ba) (mg/kg)	570	436			
	Beryllium (Be) (mg/kg)	0.41	0.45			
	Bismuth (Bi) (mg/kg)	9.01	9.41			
	Boron (B) (mg/kg)	231	262			
	Cadmium (Cd) (mg/kg)	13.4	16.9			
	Calcium (Ca) (mg/kg)	128000	150000			
	Chromium (Cr) (mg/kg)	131	139			
	Cobalt (Co) (mg/kg)	25.3	21.9			
	Copper (Cu) (mg/kg)	2420	5830			
	Iron (Fe) (mg/kg)	54300	63000			
	Lead (Pb) (mg/kg)	868	624			
	Lithium (Li) (mg/kg)	15.5	17.5			
	Magnesium (Mg) (mg/kg)	10500	11300			
	Manganese (Mn) (mg/kg)	747	795			
	Mercury (Hg) (mg/kg)	0.651	0.112			
	Molybdenum (Mo) (mg/kg)	49.2	49.8			
	Nickel (Ni) (mg/kg)	160	125			
	Phosphorus (P) (mg/kg)	8610	9040			
	Potassium (K) (mg/kg)	5840	5980			
	Selenium (Se) (mg/kg)	0.56	0.53			
	Silver (Ag) (mg/kg)	5.71	16.5			
	Sodium (Na) (mg/kg)	14700	15700			
	Strontium (Sr) (mg/kg)	339	319			
	Sulfur (S) (mg/kg)	13100	14800			
	Thallium (Tl) (mg/kg)	0.248	0.080			
	Tin (Sn) (mg/kg)	170	160			
	Titanium (Ti) (mg/kg)	1070	493			
	Tungsten (W) (mg/kg)	16.3	19.4			
	Uranium (U) (mg/kg)	4.46	4.44			
Vanadium (V) (mg/kg)	48.4	53.6				
Zinc (Zn) (mg/kg)	33600	5280				
Zirconium (Zr) (mg/kg)	1.4	1.5				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2214532-1	L2214532-2	L2214532-3	L2214532-4	L2214532-5
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	19-DEC-18	19-DEC-18	19-DEC-18	19-DEC-18	19-DEC-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1851-A-1	BA1851-A-2	BA1851-A-3	BA1851-A-4	BA1851-A-5
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.56	11.76	11.79	11.74	11.78
	2nd Preliminary pH (pH)		9.92	10.28	10.23	10.29	10.19
	Final pH (pH)		6.61	7.02	6.81	6.87	6.71
	Extraction Solution Initial pH (pH)		2.90	2.90	2.90	2.90	2.90
	Antimony (Sb)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Arsenic (As)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Barium (Ba)-Leachable (mg/L)		<2.5	<2.5	<2.5	<2.5	<2.5
	Beryllium (Be)-Leachable (mg/L)		<0.025	<0.025	<0.025	<0.025	<0.025
	Boron (B)-Leachable (mg/L)		2.79	3.11	2.99	2.84	2.73
	Cadmium (Cd)-Leachable (mg/L)		0.366	0.150	0.180	0.920	0.166
	Calcium (Ca)-Leachable (mg/L)		2100	2250	2230	2140	2070
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.180	0.216	0.444	0.199	0.234
	Copper (Cu)-Leachable (mg/L)		0.247	0.624	0.685	0.579	0.694
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)		119	125	125	121	121
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.39	0.36	0.35	0.34	0.32
	Selenium (Se)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Silver (Ag)-Leachable (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Thallium (Tl)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Vanadium (V)-Leachable (mg/L)		<0.15	<0.15	<0.15	<0.15	<0.15
	Zinc (Zn)-Leachable (mg/L)		26.0	15.8	27.9	23.1	19.3

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2214532-6	L2214532-7	L2214532-8	L2214532-9	L2214532-10
		Description	Soil	Soil	Soil	Soil	Soil
		Sampled Date	19-DEC-18	19-DEC-18	19-DEC-18	19-DEC-18	19-DEC-18
		Sampled Time	09:00	09:00	09:00	09:00	09:00
		Client ID	BA1851-A-6	BA1851-A-7	BA1851-A-8	BA1851-A-9	BA1851-A-10
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.85	11.66	11.72	11.86	11.83
	2nd Preliminary pH (pH)		10.46	10.22	10.26	10.34	10.46
	Final pH (pH)		7.07	6.78	7.00	6.68	6.88
	Extraction Solution Initial pH (pH)		2.90	2.90	2.90	2.90	2.90
	Antimony (Sb)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Arsenic (As)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Barium (Ba)-Leachable (mg/L)		<2.5	<2.5	<2.5	<2.5	<2.5
	Beryllium (Be)-Leachable (mg/L)		<0.025	<0.025	<0.025	<0.025	<0.025
	Boron (B)-Leachable (mg/L)		2.94	2.86	3.15	3.02	2.89
	Cadmium (Cd)-Leachable (mg/L)		0.150	0.177	0.179	0.216	0.332
	Calcium (Ca)-Leachable (mg/L)		2290	2200	2310	2230	2240
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.346	0.221	0.130	0.368	0.182
	Copper (Cu)-Leachable (mg/L)		0.541	0.858	0.628	0.664	0.723
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)		133	128	132	127	124
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		<0.25	0.31	0.27	0.43	0.37
	Selenium (Se)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Silver (Ag)-Leachable (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Thallium (Tl)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Vanadium (V)-Leachable (mg/L)		<0.15	<0.15	<0.15	<0.15	<0.15
	Zinc (Zn)-Leachable (mg/L)		8.78	23.2	20.6	22.8	22.2

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2214532-11	L2214532-12			
		Description	Soil	Soil			
		Sampled Date	19-DEC-18	19-DEC-18			
		Sampled Time	09:00	09:00			
		Client ID	BA1851-A-11	BA1851-A-12			
Grouping	Analyte						
SOIL							
TCLP Metals	1st Preliminary pH (pH)		11.81	11.84			
	2nd Preliminary pH (pH)		10.41	10.27			
	Final pH (pH)		6.55	6.56			
	Extraction Solution Initial pH (pH)		2.90	2.90			
	Antimony (Sb)-Leachable (mg/L)		<1.0	<1.0			
	Arsenic (As)-Leachable (mg/L)		<1.0	<1.0			
	Barium (Ba)-Leachable (mg/L)		<2.5	<2.5			
	Beryllium (Be)-Leachable (mg/L)		<0.025	<0.025			
	Boron (B)-Leachable (mg/L)		3.15	2.86			
	Cadmium (Cd)-Leachable (mg/L)		0.262	0.277			
	Calcium (Ca)-Leachable (mg/L)		2330	2350			
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25			
	Cobalt (Co)-Leachable (mg/L)		0.344	0.338			
	Copper (Cu)-Leachable (mg/L)		1.11	0.902			
	Iron (Fe)-Leachable (mg/L)		<5.0	<5.0			
	Lead (Pb)-Leachable (mg/L)		<0.25	<0.25			
	Magnesium (Mg)-Leachable (mg/L)		134	136			
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010			
	Nickel (Ni)-Leachable (mg/L)		0.38	0.48			
	Selenium (Se)-Leachable (mg/L)		<1.0	<1.0			
	Silver (Ag)-Leachable (mg/L)		<0.050	<0.050			
	Thallium (Tl)-Leachable (mg/L)		<1.0	<1.0			
	Vanadium (V)-Leachable (mg/L)		<0.15	<0.15			
	Zinc (Zn)-Leachable (mg/L)		43.8	32.9			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)	DUP-H	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Cobalt (Co)	DUP-H	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Copper (Cu)	DUP-H	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nickel (Ni)	DUP-H	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Zinc (Zn)	DUP-H	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Leachable	MS-B	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Leachable	MS-B	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Leachable	MS-B	L2214532-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.			
HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP)	EPA 1311/245.7
This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 245.7).			
MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.			
Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H ₂ S) may be excluded if lost during sampling, storage, or digestion.			
MET-TCLP-ICP-VA	Soil	Metals by ICPOES (TCLP)	EPA 1311/6010B
This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).			
MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)
This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of two hours.			
PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL
This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



L2214532-COFC

COC # _____

Page _____ of _____

Report To

Company: Covanta Energy
 Contact: Steve McKinney / Dan Skrypyk
 Address: 5150 Riverbend Drive
 Burnaby BC
 Phone: 604-521-1025 Fax: _____
 Yes No

Standard Other
 PDF Excel Digital Fax
 Email 1: smckinney@covanta.com
 Email 2: rjohnson4@covanta.com
 Email 3: dskrypyk@covanta.com
 Email 4: brent.kirkpatrick@metrovancover.org
 Email 5: Sarah.Wellman@metrovancover.org

Service Requested (Rush for routine analysis subject to availability)
 Regular (Standard Turnaround Times - Business Days)
 Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
 Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
 Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Invoice To: Same as Report?
 Hardcopy of Invoice with Report? Yes No
 Company: _____
 Contact: _____
 Address: _____
 Phone: _____ Fax: _____

Client / Project Information
 Job #: _____
 PO / AFE: PO# 46693 Weekly Bottom Ash - Suite _____
 LSD: (includes 2:1 pH)
 Quote #: _____

Analysis Request

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALS Contact:	Sampler:	Please indicate below Filtered, Preserved or both (F, P, F/P)										Number of Containers						
							MET-TCLP-VA (all metals, Hg)	MOISTURE	Chrome 6	MET-CSR-FULL-VA (all metals)													
BA1851-A-1		19-Dec-18	9:00	Soil			X	X						X								1	
BA1851-A-2		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-3		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-4		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-5		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-6		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-7		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-8		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-9		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-10		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-11		19-Dec-18	9:00	Soil			X	X						X									1
BA1851-A-12		19-Dec-18	9:00	Soil			X	X						X									1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
 By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
 Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)			SHIPMENT VERIFICATION (lab use only)				
Released by:	Date (dd-mmm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations:
<i>[Signature]</i>	27-Dec-18	08:00	RK	Dec 27 / 18	11:25am	20 °C				Yes / No ? If Yes add SIF